

prop-141: Change maximum delegation size of IPv4 address from 512 (/23) to 768 (/23+/24) addresses.

Simon Sohel Baroi (sbaroi@gmail.com)

Aftab Siddiqui (aftab.siddiqui@gmail.com)

Problem Statement

- According to the APNIC IPv4 Address Report, (<https://www.apnic.net/manage-ip/ipv4-exhaustion/>) the available and reserve pool size is as follows:
- Available Pool : IP Address 3,782,144 | 14,774 Of /24
- Reserved Pool : IP Address 1,831,680 | 7,155 Of /24
- If APNIC continues to delegate IPv4 in size of /23 with the average growth rate of 145 x /23 delegations per month the pool will be exhausted around Aug/Sep 2027. Which means the huge number of IPv4 addresses will be unused for a long time and large community members will still remain behind the NAT box or even without Internet Connectivity.

Proposed policy solution

- It is recommended to increase the IPv4 address delegation size from 512 max (/23) to 768 (/23 + /24). The address space can now be allocated from the available 103/8 last /8 block and/or from non 103/8 recovered address blocks. This policy will continue until the available + reserved pool comes down to 900,096 IPv4 addresses i.e. < 3516x/24, once reaching this threshold the maximum delegation size will revert back to 512 IPv4 addresses (/23) and will continue to do so until the available + reserved pool comes down to 256,000 IPv4 addresses i.e 1000x/24 then the delegation size will further reduce to 256 IPv4 addresses i.e. /24.
- The very first time the reserved and available pool goes below 190,000 IPv4 addresses, then the IPv4 reserved pool (APNIC-127 Section 5.1.1) for Future Use of /16 (i.e. 256 x /24s) will be added to the available pool.

Proposed policy solution

- Threshold Stages for IPv4 addresses (Available + Reserved):
- Stage 1 - More than 900,000 IPv4 addresses: **Delegation Size /23 + /24**
- Stage 2 - Less than 900,000 IPv4 addresses and more than or equal to 256,000 IPv4 addresses: **Delegation Size /23**
- Stage 3 - Less than 256,000 IPv4 addresses and more than 190,000 : **Delegation Size /24**
- Stage 4 - Less than 190,000 IPv4 addresses add APNIC-127 5.1.1 Reserved /16 to available pool: **Delegation Size /24**

Whenever the next threshold is met then all resource requests received on the day and all those under review should be dealt with by the previous threshold.

Advantages / Disadvantages

- Advantages: This proposal will ensure smooth allocation of IPv4 addresses to existing and new APNIC members.
- Disadvantages: This might add up to 10,000 /24s into the global routing table i.e. 1.2% increase. The current growth rate without this policy is approximately 7% every year.

Questions ?